

Chapter 4 Lists

4.1 List of Preparers and Contributors

Biosketches for the Interdisciplinary Planning Team are provided below. This section also lists additional Superior National Forest (SNF) staff who contributed to the development and preparation of this EIS.

4.1.1 Interdisciplinary Planning Team (Core)

Name	Carol Booth
Position	Integrated Resource Analyst, West Zone, SNF
Education	BS, Forest Science, University of Minnesota
Experience	31 years of Forest Service experience in recreation, wilderness, trails, timber, special uses, and planning.
Contribution	Project Coordinator
Name	Jason Brey
Position	Forester/Silviculturist, LaCroix Ranger District, SNF
Education	BS Forestry, Michigan Technological University
Experience	2 years of Forest Service experience; 4 years experience Forester with Crow Wing County Land Department
Contribution	Vegetation treatment proposals and landscape ecosystem analysis
Name	Todd Stefanic
Position	Wildlife Biologist, LaCroix Ranger District, SNF
Education	BS Wildlife Management, University of Wisconsin at Stevens Point
Experience	4 years of Forest Service experience; 3 years Wildlife Biologist Salton Sea National Wildlife Refuge, USFWS; 6 years Biological Science Technician (Wildlife) Arapaho NWR, USFWS; 1 season Biological Science Technician (Wildlife) Benton Lake NWR, USFWS
Contribution	Wildlife effects analysis, Biological Evaluation for animals
Name	John Galazen
Position	Fuels Planner, West Zone, SNF
Education	BS, Forest Management, University of Wisconsin at Stevens Point
Experience	21 years of Forest Service experience in resource management. Interdisciplinary Team Leader for five forest management environmental assessments and two environmental impact statements. Work experience as pre-sale crew member, wilderness ranger, and fire crew member.
Contribution	Fire risk analysis and prescribed fire treatment proposals
Name	Casey J. McQuiston
Position	Soil Scientist, Kawishiwi Ranger District, SNF
Education	BS, Biology; minor in Geology from Bemidji State University
Experience	8 years of Forest Service experience as a Biological Science Technician and Soil Scientist.
Contribution	Soils analysis

Name **Tim Engrav**
Position West Zone Assistant District Ranger for Recreation, Wilderness, and Special Uses, SNF
Education BS, Geography (Park & Recreation Planning Emphasis), Bemidji State University and MEd, Educational Organization & Leadership, University of Illinois at Urbana-Champaign
Experience 6 years of Forest Service experience in recreation, wilderness, and special uses management; 2 ½ years of experience with Itasca County, Minnesota, in recreation management and land use planning; and 2 ½ years of experience as a college instructor of outdoor recreation.
Contribution Recreation, scenery, and wilderness technical expertise and analysis

Name **Erich Grebner**
Position GIS Coordinator, West Zone, SNF
Education BS, University of Minnesota; CEFES - Universities of Idaho, Montana, and Washington State
Experience 28 years of Forest Service experience in natural resource management and Geographic Information System (GIS) analysis; several years experience as a Certified Silviculturalist on the Tongass National Forest.
Contribution Spatial analysis and maps

Name **Ellyn Finch**
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Education Associate of Science – Hocking College
Experience 18 years of Forest Service experience in natural resource management
Contribution Transportation planning

4.1.2 Interdisciplinary Planning Team (Extended Team)

Colleen Rablin	Administrative Assistant, LaCroix RD, SNF
Jack Greenlee	Plant Ecologist, SNF
Jason T. Butcher	Fisheries Biologist/Aquatic Ecologist, West Zone, SNF
William Clayton	Archaeologist, Superior NF
Beth Youngstrom	Special Use Specialist, LaCroix and Laurentian RD, SNF
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Marty Rye	Hydrologist, NF
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4.2 Distribution list

Federal Government
Representative James L. Oberstar
Senator Amy Klobuchar
USDA APHIS PPD/EAD
USDA National Agriculture Library
USDA National Resources Conservation Service
USDI Office of Environmental Policy
US Coast Guard Environmental Management
US Department of Energy Office of NEPA Policy and Compliance
US Environmental Protection Agency, Washington, DC
US Environmental Protection Agency, Region 5
US Army Engr. Great Lakes and Ohio Division
Advisory Council on Historic Preservation
Federal Aviation Administration, Great Lakes Region
Federal Highway Administration
US Fish and Wildlife Service
USDI Voyageurs National Park, Chris Holbeck

Tribal Government

1854 Treaty Authority, Director, Resource Management Division, Andrew J Edwards
Bois Forte Tribal Government, David J Larson

State and Local Government

MN DNR Northeast Regional Director, Craig Engwall
MN DNR, Director, Division of Ecological Services

Organizations

FS Employees for Environmental Ethics, James Johnston
Friends of the Boundary Waters Wilderness, Brian S Pasko
Little Johnson Lake Association, Bradford H Saxhaug
Minnesota Center for Environmental Advocacy, Matthew Norton
Northeastern Minnesotans for Wilderness, Bradley Sagen
Sierra Club, North Star Chapter, Annah Gardner
Voyageurs National Park Association, Cory Counard MacNulty
The Wilderness Society

Businesses

Ainsworth Engineered, Kent Jacobson
Minnesota Forest Industries, Tim J O'Hara
Rutar Logging LLC

Individuals

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John Rasmussen
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Frank & Wendy Savage
Mark Saxhaug
John Schoenecker
Don Schweisthal
Brad & Ann Sertich
Joseph & Janet Sopp
Brad & Andrea Weber
Matt Wolff

4.3 Literature Cited

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4.4 Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ATV	all-terrain vehicle
BE	biological evaluation
BMPs	Best Management Practices
BWCAW	Boundary Waters Canoe Area Wilderness
BUI	Build Up Index
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
DBH	diameter at breast height
DNR	Department of Natural Resources
ECS	Ecological Classification System
EA	Environmental Assessment
EIS	Environmental Impact Statement
ELT	ecological land type
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FOFEM	First Order Fire Effects Model
FPR	Forest Plan Revision
FR	Forest Road
FSH	Forest Service Handbook
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IDT	interdisciplinary team
LAU	Lynx Analysis Unit
LCAS	Lynx Conservation Assessment and Strategy
LE	landscape ecosystem
LTA	Landtype Association
LTP	landtype phase
MA	Management Area
MBF	thousand board feet
M&E	Monitoring and Evaluation
MFRC	Minnesota Forest Resources Council
MFRG	Minnesota Forest Resources Guidelines
MIH	Management Indicator Habitat
MIS	Management Indicator Species
MMBF	million board feet
MNDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
NAAQS	National Ambient Air Quality Standards
NRHP	National Register of Historical Places
NEPA	National Environmental Policy Act
NF	National Forest
NFMA	National Forest Management Act

NFS	National Forest System
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NNIS	Non-native Invasive Species
NRRI	Natural Resource Research Institute
NSU	Northern Superior Uplands
OHM	off-highway motorcycle
OHV	off-highway vehicle
OML	Operation Maintenance Level
ORV	off-road vehicle
PBP	Prescribed Burn Plan
PM	particulate matter
pRNA	Potential Research Natural Area
RFSS	Regional Forester Sensitive Species
RD	Ranger District
RMV	recreational motor vehicle
RNV	Range of Natural Variability
ROD	Record of Decision
ROS	Recreational Opportunity Spectrum
SHPO	State Historic Preservation Office
SI	Site Index
SMS	Scenery Management System
SMP	Smoke Management Plan
SUP	Special Use Permit
TES	threatened, endangered, and sensitive
TSI	timber stand improvement
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
VIS	Viability Indicator Species

4.5 Glossary

Access – Opportunities to approach, enter, and make use of public or private land.

Action alternative – A management option that proposes a definitive action.

Advisory Council on Historic Preservation (ACHP) – The federal agency responsible for overseeing the management and protection of heritage resources in compliance with the NHPA.

Age class – One of the intervals into which the age range of trees is divided for classification

Aggregate – Crushed rock typically used for road and drainage construction.

Airshed, Class I – The airshed class is a special designation that dictates the degree of regulatory protection of air quality that the area receives. Class I areas are those that receive the highest level of regulatory protection. They include all international parks, national parks larger than 6,000 acres, and wilderness areas larger than 5,000 acres that were in existence on or before August 7, 1977.

Airshed, Class II – Class II areas receive less regulatory protection than Class I areas. They include all areas that have not been designated as Class I areas. The entire State of Minnesota, other than the Boundary Waters Canoe Area Wilderness and Voyageurs National Park, has received Class II designation.

All-terrain Vehicle (ATV) – A motorized flotation-tired vehicle of not less than three low pressure tires, but not more than six tires, that if limited in engine displacement of less than 800 cubic centimeters and total dry weight less than 900 pounds.

Alternatives – A set of possible options for responding to the purpose and need (Chapter 1). A number of alternatives that address the management problems to varying degrees are identified and evaluated for their effects on people and the environment. Each alternative must address each of the management problems to some degree.

Ambient Air Quality – The quality of the air as measured by its concentrations of airborne pollutants. The EPA has established air quality standards for concentrations of specific airborne pollutants, which when exceeded would cause or contribute to adverse effects on human health or welfare.

Areas of Special Interest – Special Management Complexes (SMCs) and Potential Research Natural Areas (pRNAs).

Archaeological Site – A heritage resource that contains physical manifestations of purposeful prehistoric or historic human activity consisting of one or more features, with or without artifacts; one or more formal tools found in association with other cultural material; the occurrence of diverse cultural materials in densities beyond the level of one or a few accidentally lost artifacts; or physical manifestations of human activity that, in the professional opinion of an archaeologist, are indicative of purposeful human activity.

Archaeology – The scientific study of the life and culture of people who lived in the past.

Artificial Regeneration – A plant community established manually by spreading seed or planting seedlings.

Artificial Seeding – The distribution of seed by hand or machine.

Atmospheric Deposition – The movement from the atmosphere to the soil of particles and dissolved substances either by rain or snow or as dust.

Bank slide – A collapse of bank material into the stream that can result in a steep slope of exposed soil.

Basal Area – The cross-sectional area of all stems in a stand measured at 4.5 feet above the ground and expressed per unit of land area. Basal area is a way to measure how much of a site is occupied by trees.

Bedrock – Solid rock which underlies soil or other unconsolidated materials.

Benefit-Cost Ratio – The ratio obtained by dividing the anticipated benefits (revenues) by the anticipated costs to obtain a measure of expected benefits per unit of cost.

Berm – An earthen barrier placed on a road to prevent some types of motorized uses.

Best Management Practices (BMPs) – A series of guidelines or minimum standards for proper application of forestry operations, designed primarily to prevent soil erosion and water pollution, and to protect certain wildlife habitat values in riparian and wetland areas. For this project, the MFRC Voluntary Site-level Forest Management Guidelines (MFRC 1999) would apply.

Biennial Plant – A plant that normally needs two years to reach maturity, producing leaves in the first year, blooming and yielding fruit in the second year, and then dying.

Biological Evaluation (BE) – A process to ensure that actions do not jeopardize the continued existence of any listed species or result in destruction or adverse modifications of critical habitat of Federally endangered or threatened species, contribute to loss of viability of native or non-native desirable species, or cause a trend toward Federal listing of any species (Forest Service Manual 2672.4-4.1.)

Board foot (bf or bd ft)– The amount of wood contained in an unfinished board one inch thick, 12 inches long, and 12 inches wide. Commonly, 1,000 board feet is written as 1 MBF, and 1,000,000 board feet is written as 1 MMBF.

Bogs – Wetlands that are dominated by sphagnum moss, often with plants in the heath family, characterized by low pH and the accumulation of organic material.

Buffer – An area that is designated to block or absorb unwanted impacts to the area beyond the buffer.

Build Up Index (BUI) – A measure of the total fuel available for fire consumption; a reflection of forest floor fuel moisture.

Burn plan – A document that describes the activities associated with a prescribed burn including objectives, location, site description, control line construction, and special considerations such as sensitive resources, safety concerns, mitigation measures, and

unique requirements. Burn plans also include a description of the weather and fuel conditions that are required for a safe and successful burn, and the step-by-step process for managing the prescribed burn from start to finish.

Canopy – The overhead branches and leaves in a forest stand.

Canopy closure – A measure of the extent to which the crowns of trees are nearing general contact with each other.

Chip – To use a mobile machine called a “chipper” at the harvest site to cut or “chip” wood into small pieces that can be piled, transported, and utilized as a forest product.

Classified Road – Roads wholly or partially within or adjacent to National Forest System land that are determined to be needed for long-term motor vehicle access, including state roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service.

Clean Air Act – Established in 1963 to protect and enhance the quality of the Nation’s air through air pollution prevention and control.

Clean Water Act – Policy established in 1948 to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.

Clearcut – Removal of all or almost all trees in the stand with a single cutting.

Clearcut (with reserves) – A variation of clearcutting where varying numbers of trees are not harvested, helping to attain goals other than regeneration. A minimum of six to twelve reserve trees per acre, whether clumped or scattered, would be left uncut in the harvest unit to meet objectives other than regeneration.

Closure – An administrative order restricting either the location, timing, or type of use in a specific area.

Compaction (soil) – Compression of the soil resulting in reduced soil pore space, decreased movement of water and air into and within the soil, decreased soil water storage, and increased surface runoff and erosion.

Condition Class – Departure from the historic fire regime, as determined by the number of missed fire return interval (with respect to the historic fire return interval) and the current structure and composition of the system resulting from alterations to the disturbance regime.

Concern Level – The relative importance to the public of landscape aesthetics viewed from travel routes and use areas. *Concern Level 1* travel routes and areas have significant public use, and scenic quality is a high concern to typical users. *Concern Level 2* travel routes and areas have either a high volume of use with the public having a lower degree of concern for scenic quality, or a moderate amount of use with the public having a high degree of concern for scenic quality.

Conifer – A wide range of tree species that are typically evergreen and bear cones and needle-like or scale-like leaves, such as red pine and spruce.

Conifer Restoration – The process of changing hardwood stands to conifer.

Consultation/Consulting Parties – A portion of the review process under Section 106 of the National Historic Preservation Act during which consulting parties consider ways to resolve adverse effects on historic properties. The consulting parties include, at a minimum, the responsible federal agency and the SHPO. Other interested parties, such as the ACHP, Indian tribes, and local governments, will also be invited to consult.

Contingency Plan (for Prescription Fire) – Identification of contingency actions to be taken if the fire exceeds prescription parameters and/or line holding capabilities and cannot be returned to prescription.

Conversion – A change from one silvicultural system to another, or from one tree species to another (species conversion). The word “conversion” was used interchangeably with “restoration” in this EIS.

Cord – A stack of fuel wood, pulpwood, or other material that measures 4 x 4 x 8 feet, or 128 ft³.

Crown – The part of a single tree bearing live branches and leaves.

Crown closure – The point at which crown perimeters within a canopy touch.

Crown cover – The ground area covered by the crowns of trees or woody vegetation as delimited by the vertical projections of crown perimeter, and commonly expressed as a percent of total ground area. Crown cover measures the extent to which the crowns of trees are nearing general contact with each other.

Crown Fire – A fire that spreads through the tops of trees. Generally, fire spread rate for a crown fire is faster than for the supporting surface fire.

Council on Environmental Quality (CEQ) – An Executive Office of the President of the United States; CEQ members are appointed by the President. CEQ recommends national policies to promote the improvement of the quality of the environment.

Cumulative Effects – The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Decommission – Removal of a road from the Forest Transportation Road System. This may include demolition, dismantling, removal, and obliteration. Decommissioning is done to travel ways that are no longer needed for resource management.

Desired future condition (DFC) – Description of land and resource conditions if all long-term goals are achieved.

Detrimental Soil Disturbance – A reduction in a soils capacity to perform its biologic, hydrologic, and/or ecological functions. Typically caused by compaction, displacement, erosion, or nutrient loss.

Diameter at Breast Height (DBH) – The diameter of a tree measured at 4.5 feet above the ground on the uphill side of the tree.

Direct Effects – Results of an action occurring when and where that action takes place.

Direct Employment – Employment in the economic sectors directly affected by a proposed action or alternatives. The primary economic sectors directly affected by the proposed action or alternatives include forest resources and wood products.

Disc trencher – a machine designed for mechanical site preparation. It provides continuous rows of planting spots; it consists of scarifying steel discs equipped with teeth.

Displacement – Movement of soil due to pressure applied from mechanical equipment. Can remove or disturb the duff layer or cause ruts to form.

Distance Zone – Areas of the landscape determined by a specified distance from the observer. The distance zone is used as a frame of reference in which to discuss landscape characteristics. The three distance zones are: background (3 to 5 miles to infinity from the viewer); middleground (¼ to 3 to 5 miles from the viewer); and foreground (0 to ¼ mile from the observer).

Duff – The topsoil layer consisting of partly and well-decomposed plant organic matter.

Easement – The public acquisition, by purchase or donation, of certain rights on private lands.

Ecological Classification System (ECS) – A Forest Service and interagency classification system based on hierarchical levels of classification. Eight levels progress from hundreds of thousands of square miles to less than 100 acres. Includes Land Type Association (LTA), Ecological Land Type (ELT), and Land Type Phase (LTP) levels.

Ecological Land Type (ELT) – A classification level in the Ecological Classification System. Each ELT represents an area of land with a distinct combination of natural, physical, chemical, and biological properties that cause it to respond in a predictable and relatively uniform manner to the application of given management practices. In a relatively undisturbed state and/or at a given stage of plant succession, an ELT is usually occupied by a predictable and relatively uniform plant community. The sizes of ELTs generally range from ten to a few hundred acres.

Economic Efficiency – Economic efficiency is a term used to describe how well inputs are used to achieve outputs when all inputs and all outputs are identified and valued. Because some outputs and effects cannot be adequately valued, true quantitative measures of economic efficiency often cannot be obtained. Also: The competence of a business or the worth of a process, piece of equipment, or machine as judged by output per unit cost of the resources used.

Edge Effect or Edge Habitat – Effects or distinct habitat types that occur near the edge of a patch. These effects can include increased predation, nest parasitism, and physical changes in microclimate, light availability, and wind that can result in a different

vegetation composition compared to interior forest. Edge effects can extend 400 feet or more into forest patches.

Effectiveness Monitoring – A systematic process of collecting information to ensure that implemented mitigation measures perform as expected in minimizing adverse effects.

Endangered species – An official designation given by the US Fish and Wildlife Service that is applied to any species in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act – The purpose of this 1973 law is to conserve the ecosystems upon which endangered and threatened species depend, and to conserve and recover listed species.

Environmental Impact Statement (EIS) – A statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for comment and review. It must follow the requirement of NEPA, the Council on Environmental Quality guidelines, and directives of the agency responsible for the project proposal.

Environmental Justice – The fair treatment and meaningful involvement of all people within the affected area in the development, implementation, and enforcement of environmental laws regardless of race, color, national origin, or income.

Erosion – Detachment of soil particles under the influence of water and/or wind.

Even-aged – Timber management actions that result in the creation of stands of trees in which the trees are essentially the same age. Clearcut, shelterwood, or seed-tree harvest methods produce even-aged stands.

Federal Land Policy and Management Act (FLPMA) – Passed in 1976, this law provides a “multiple-use” framework for managing America's public lands that focuses on the needs of present and future generations.

Federal Register – The Federal Register is the daily publication for environmentally-related rules, proposed rules, and notices of Federal Agencies.

Financial Efficiency – Financial efficiency is a term used to describe how well public resource inputs are used to achieve outputs when all inputs and outputs are identified and valued.

Fire Adapted Ecosystem – An ecosystem with the ability to survive and regenerate in a fire-prone environment.

Fire Control Line – a constructed or natural barrier used to control a fire.

Fire Intensity – The heat released per unit of time for each unit of length of the leading fire edge.

Fire Regime – The fire pattern across the landscape, characterized by occurrence interval and relative intensity.

Fire Risk Index – A ranking of a mixture of species composition and age into groups of relative fire risk.

Floodplain – Any normally dry land area that is susceptible to being inundated by water from any natural source. This area is usually low land adjacent to a river, stream, watercourse, ocean, or lake.

Forest Patch – A group of forest stands of similarly-aged forest that may be made up of different forest cover types.

Fragmentation – Breaking up of contiguous forested areas into progressively smaller patches of different ages and/or forest types with an increasing degree of isolation from each other.

Fuel – All dead and living material that will burn.

Fuel break – Any natural or constructed barrier used to segregate, stop, and control the spread of fire, or to provide a control line from which to work.

Fuel load – The oven-dry weight of fuel per unit area, usually measured in tons per acre. Fuel includes all dead and living material that will burn.

Fuel Management – The practice of evaluating, planning, and treating wildland fuel to reduce flammability and to reduce its resistance to control through mechanical, chemical, biological, or manual means, including prescribed fire.

Fuel reduction – Action taken to decrease the buildup of fuels that could support wildfires. Reduction techniques include prescribed burns, and mechanical and hand tool treatments.

Fuel Treatment – The manipulation of wildland fuel, such as lopping, chipping, crushing, piling and burning, or removal, for the purpose of reducing its flammability or resistance to control.

Geographic Information System (GIS) – A computerized method used for inventory and analysis, which can layer large volumes of spatial data, or maps, to identify how landscape features interrelate.

Glacial Till – An unconsolidated and unsorted glacial deposit of rocks, sand, silt, and other glacial debris.

Habitat – The natural environment of a plant or animal. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Hardwood – All broad-leaved trees, including “soft” hardwoods, such as birch and aspen.

Harvest Unit – A unit consisting of one or more stands that would receive similar treatments concurrently.

Heritage Resource – A district, site, building, structure, or object that contains evidence of past human activities.

Historic Property – A district, site, building, structure, or object significant in American history, architecture, engineering, archeology, or culture, which meets the requirements for National Register of Historic Places eligibility.

Horizontal Diversity – the distribution and abundance of different plant and animal communities of different stages of plant succession across an area of land; the greater the numbers of communities in a given area, the higher the degree of horizontal diversity.

IMPLAN – A computer-based system used by the Forest Service to construct non-survey input-output models to assess the regional effects of changes in expenditure and employment.

Implementation monitoring – A systematic process of collecting information to assess whether the project was implemented as designed, and whether or not project implementation complies with the Forest Plan.

Indirect Effects – Results of an action that occur later in time, or further removed in distance, from where the action took place.

Indirect Employment – Employment in economic sectors that provide direct and indirect inputs to the directly affected sectors.

Intensity (fire) – The heat released per unit of time for each unit of length of the leading fire edge.

Interdisciplinary Planning Team – A group of individuals with different training assembled to perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to adequately solve the problem.

Interior Forest – A large contiguous forest with a closed or partially open canopy of relatively mature trees, minimally influenced by adjacent cover types or edge habitat.

Intermittent stream – A stream that flows only at certain times of the year when it receives water from rainfall or run-off from some surface source, such as melting snow.

Invasive species – Organisms, usually non-native, that spread rapidly and occupy a location, inhibiting or crowding out the native species.

Inversion – An atmospheric condition that occurs when the temperature of a layer of the atmosphere increases with height. The air below this layer is held in place and not allowed to rise through it and mix with the air above.

Key Habitat – The habitat type known or suspected to be the current limiting factor or of greatest management concern for a species or species group in the vicinity of the project area. Key habitat typically includes breeding habitat if the species is known to breed in northern Minnesota, but may include foraging or roosting habitat. Key habitat is used for analysis of the potential effects of the different alternatives on wildlife species.

Key issues – Controversial issues regarding a project's proposed activities. These issues may be connected to proposed activities that have the potential to result in a significant effect to the environment if the activities are implemented. Key issues are identified through the scoping process and are used to develop alternatives.

Lacustrine – Wetlands and deepwater habitats lacking woody or persistent emergent vegetation, either covering more than 20 acres or with water deeper than 6.6 feet.

Ladder Fuels – Combustible material such as live and dead foliage, branches, and lichens that provide a vertical ladder, allowing fire to climb into the crowns of trees with relative ease.

Landing – A cleared area in the forest to which logs are brought and loaded onto trucks for transportation.

Landscape Character – Particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique.

Landscape Ecosystem (LE) – The land and vegetation systems that occur naturally on the landscape. Landscape Ecosystem units were specifically developed for assessing and analyzing ecosystems in Northern Minnesota.

Landtype Association (LTA) – A level in the Ecological Classification System hierarchy that addresses broad land areas and ranges in size from 10,000 to 25,000 acres. These units typically have similarities in geologic processes, bedrock types, soil complexes, stream types, lakes, wetlands, and vegetative communities.

Legacy patch – An area within a harvest unit that is excluded from the harvest; this area is representative of the site and is not disturbed with regard to soil compaction, litter, removal, and alteration of hydrology. The purpose of a legacy patch is to maintain a source area for recolonization, gene pool maintenance, and establishment of microhabitats for organisms that can persist in small patches of mature forest.

Legal Closure – An administrative order restricting either the location, timing, or type of use in a specific area.

Lop-and-Scatter – To remove the upward-extending branches from tops of felled trees in order to keep slash low to the ground; this practice is used to improve aesthetics, increase the rate of decomposition, lower the fire hazard, or pre-treat the area prior to burning.

Lynx Analysis Unit (LAU) – Areas approximating the size of the annual home range of a female Canada lynx, used as a means of tracking and evaluating cumulative effects on the lynx.

Lynx Conservation Assessment and Strategy (LCAS) – A document developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the lower 48 States.

Maintenance Level 1 Roads – Roads that are intermittently closed to vehicular traffic for periods exceeding one year, but receive basic maintenance during closed periods because they will be needed again for future management activities.

Management Area (MA) – Portions of a landscape with similar management objectives and a common management prescription. Management areas emphasize one of the nine possible goals or “desired future conditions” of the land as described in the Regional

Planning Guide (1983). Specific direction for each management area is described through management practices, standards, and guidelines.

Management Indicator Habitats (MIH) – Habitats that represent a wide variety of native species, including the majority of Management Indicator Species and Regional Forester Sensitive Species that are part of that habitat.

Management Indicator Species (MIS) – Native wildlife species of the Superior National Forest selected to represent the community types and habitats that may be affected by management activities.

Marshes – Wetlands dominated by grasses and grass-like plants, including sedges and rushes.

Mature Tree or Stand – A tree or stand that has attained full development, particularly in height, and is in full seed production.

Mesic – Sites or habitats characterized by intermediate moisture conditions, neither decidedly wet nor dry.

Million board feet (MMBF) – The amount of wood contained in one million unfinished boards, each measuring one inch thick, 12 inches long, and 12 inches wide.

Mitigation – Action taken for the purpose of eliminating, reducing, or minimizing negative impacts of management activities on the environment.

Mixed Layer – The depth of atmosphere over which vigorous mixing occurs.

Mixing Height – The maximum height of the mixed layer of the lower atmosphere.

Monitoring – A systematic process of collecting information to evaluate changes in actions, conditions, and relationships over time and space relative to a pre-determined standard or expected norm.

Monitoring and Evaluation (M&E) – The periodic evaluation of management activities to determine how well objectives are met, and how closely management standards and guidelines have been applied.

Multiplier Effect – Effect of inflows or outflows from a local economy that result in changes by a multiple of the original change. The more locally produced goods and services affected, the larger the multiplier effect.

National Environmental Policy Act (NEPA) – Public law that outlines specific procedures for integrating environmental considerations into agency planning. Congress passed NEPA in 1969 to encourage productive and enjoyable harmony between people and their environment. One of the major tenets of NEPA is its emphasis on public disclosure of possible environmental effects of any major action on public land. The Act requires a statement of possible environmental effects to be released to the public and other agencies for review and comment.

National Forest Management Act (NFMA) – Public law of 1976 that provides for planning and management of National Forests and requires the preparation of forest plans.

National Historic Preservation Act (NHPA) of 1966 – Established federal government policy and programs on historic preservation, including the creation of the National Register of Historic Places through which the policy is implemented.

National Register of Historic Places (NRHP) – A list, maintained by the Keeper of the Register at the National Park Service, of properties that have been evaluated and found to meet one of several specific criteria of significance listed at 36 CFR 60.4.

Natural Disturbances – Disruption of existing conditions by wind, fire, flooding, drought, insects, and disease at a scale from one tree to hundreds of thousands of acres.

Natural Regeneration – A plant or plant community established through a naturally-occurring process such as seeding, sprouting, or suckering.

Natural Seeding – The production and distribution of seed by trees existing in a stand.

Neotropical Migratory Birds – Bird species that winter regularly south of the Tropic of Cancer.

Net Stumpage Value – Revenue received from selling stumpage at the mill minus the production cost to produce the stumpage (Includes: logging, road construction, yarding, and the transportation of logs from the stump to the mill).

New Road Construction – Activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1).

No-action alternative – A management option that proposes that current management practices remain unchanged. The analysis of this alternative is required for federal actions under the National Environmental Policy Act.

Non-Attainment Area – A geographic area designated by the EPA as not in compliance with the National Ambient Air Quality Standards.

Non-native Invasive Species (NNIS) – *Non-native species* are any species that occupy an ecosystem outside its historical range. *Invasive species* are any species whose introduction does or is likely to cause economic or environmental harm or harm to human health. *Non-native invasive species* are those species that spread from their original native habitat, to one that is not their native habitat. NNIS explode in population because they are not in their original ecosystem where they were kept in check by many factors, such as parasites and predation. Frequently these species are aggressive and difficult to manage. NNIS differ from noxious weeds in that NNIS can be animals or plants, and they are strictly non-native species.

Northern Superior Uplands (NSU) Ecological Section -- An ecological unit defined by glacial deposits, topography, distribution of plants and regional climate.

Notice of Intent (NOI) – An announcement released in accordance with NEPA regulations that an Environmental Impact Statement will be prepared. An NOI must be

published in the Federal Congressional Register and is intended to solicit public comment about a proposed action.

Noxious weeds – Any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.

Nutrient Cycling – Circulation or exchange of elements such as nitrogen and carbon between non-living and living portions of the environment. Includes all mineral and nutrient cycles involving mammals and vegetation.

Nutrients – Substances needed to sustain life; often limited in supply. Within the context of this Draft EIS, important nutrients for the aquatic ecosystem are compounds containing phosphorus and nitrogen.

Obliterate – The action needed to close an unneeded road and return land to a more natural state.

Obliteration – Returning a road or trail alignment to production, meaning that the road or trail will no longer be used or planned for future use as a travel way and will be stabilized. Obliteration blocks the road or trail and over time removes the impression that the road or trail is to be used as a travel way. This term is synonymous to “decommission”.

Old Forest – An age class older than the mature age class

Old-growth – Old growth forests are forests that have developed relatively free of stand replacement disturbances over a long period of time. Old-growth consists of late successional stages of naturally-occurring forests dominated by long-lived species, and containing large trees and tree fall gaps. Old-growth stands has multiple canopy layers, high levels of structural diversity, and a high frequency of snags and downed logs of various sizes and stages of decay. The minimum age for old-growth is 120 years for all species except white spruce (90 years) and black spruce (80 years).

Objective Maintenance Level (OML) – The intended level of maintenance to be received by each classified road. OMLs range from OML1 to OML5.

Off-road vehicle (OHV) – motorized, recreational vehicle capable of cross-country travel on natural terrain, such as a four-wheel drive trucks and ATVs that have an engine displacement of more than 800 cubic centimeters and total dry weight of more than 900 pounds. Also see Forest Plan for complete description.

ORV – Off-road vehicles are motorized, recreational vehicles capable of cross-country travel on natural terrain, such as four-wheel drive trucks and ATVs that have an engine displacement of more than 800 cubic centimeters and total dry weight of more than 900 pounds. Also see Forest Plan for complete description.

Overmature tree or stand – A tree or stand that has attained full development, particularly in height, and is declining in vigor, health, and soundness.

Overstory – The upper canopy layer; the plants below comprise the understory.

Palustrine – Wetlands dominated by trees, shrubs, or persistent emergent vegetation, or with open water covering less than 20 acres or shallower than 6.6 feet.

Partial Cut – A harvesting system that leaves at least 30 ft² and up to 80 ft² basal area. This harvest method facilitates reaching desired stand conditions in terms of structure and age while at the same time producing timber volume. Partial cuts with a smaller retention are like shelterwood systems, while partial cuts with more retention are considered multiple-aged management. Partial cuts can be used with all forest types. (Note: Partial cut prescriptions for the Echo Trail Area Project were designed to leave approximately 30 ft² basal area.)

Patch – A group of forest stands of similarly-aged forest that may be made up of different forest cover types.

Perennial Plant – A plant having a life span of more than two years.

Perennial stream – A stream that maintains water in its channel throughout the year.

Permit – A special use authorization that provides permission without conveying an interest in the land, to occupy and use NFS land or facilities for specified purposes and is both revocable and terminable.

PM_{2.5} – Particulate matter less than 2.5 microns in aerodynamic diameter. Usually referred to as “fine particulate matter.” PM_{2.5} may be inhaled deep into the lungs and is therefore of concern from a human-health standpoint. It is also the leading cause of visibility impairment.

Prescribed Fire or Prescribed Burn – The intentional use of fire to accomplish specific resource objectives under prescribed conditions and circumstances. Prescribed fire is used to prepare sites for natural regeneration of trees, reduce fuels, or control unwanted vegetation.

Prescribed Burn Plan (PBP) – A specific operational plan for a prescribed fire that has a set minimum number of elements that must be addressed. All prescribed fire actions are developed from resource management objectives carried forward from land management plans.

Pole-sized – A tree of a size between a sapling and a mature tree, often categorized as 1 to 6 inches diameter at breast height (dbh).

Purpose and need – Specifies the project objectives and the reasons they are needed. Explains who wants to do what, where they want to do it, and when. The purpose and need for a project is arrived at by examining the differences between the existing condition and the desired future condition.

Range – The geographic area over which a species is known or believed to occur.

Range of Natural Variability (RNV) – The variation of physical and biological conditions within an area due to natural processes with all of the elements present and functioning.

Recreation Opportunity Spectrum (ROS) – A framework of stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into six classes: primitive, semi-primitive, non-motorized, semi-primitive motorized, roaded natural, rural, and urban.

Recreational Motor Vehicles (RMVs) – All-terrain vehicles (ATVs), snowmobiles, motorcycles, flotation-type ATVs, and other motor vehicles used for recreation.

Reforestation – the reestablishment of forest cover either naturally or artificially.

Regional Forester Sensitive Species (RFSS) – A native animal species identified by the Regional Forester for which population viability is a concern on the Superior National Forest. Such concern may be prompted by a significant current or predicted downward trend, either in population numbers, or the availability of habitat capable of supporting the existing distribution of the species.

Release – Removal of competing vegetation to allow desired tree species to grow.

Research Natural Area (RNA) – An area within a National Forest that has been designated to be permanently protected and maintained in a natural condition.

Reserve Trees – Individual trees or groups of trees retained in a stand after a harvest for the purpose of providing seed, stand structure, habitat, or for aesthetic considerations.

Restoration – The process of returning ecosystem or habitats to their original structure and species composition. The word “restoration” was used interchangeably with “conversion” in this EIS.

Rhizome – A modified stem that grows below ground, commonly stores food materials, and produces roots, scale leaves, and suckers irregularly along its length.

Riparian Area – The area of direct interaction between terrestrial and aquatic environments. Riversides and lakeshores are typical riparian zones.

Riprap – Rocks, pieces of used concrete, or other material of various sizes placed firmly or loosely on river banks to prevent scouring by the river, or on slopes or road cuts to prevent erosion.

Riverine – Relating to rivers and streams.

Road Density – The number of miles of road per square mile in a land area..

Road Reconstruction – Activity that results in improvement or realignment of an existing classified road.

Roadless Area – An area inventoried in a National Forest that meets specific criteria. Some of the criteria include: 1) is approximately 2,500 acres, or if smaller, is contiguous to a designated wilderness or primitive area, or lies east of the 100th Meridian, and therefore, under the jurisdiction of the Eastern Wilderness Act; and 2) can include up to ½ miles of improved Forest Service road per 1,000 acres; and 3) has been inventoried for further study as a possible inclusion in the Wilderness Preservation System.

Record of Decision (ROD) – A document, associated with but separate from an EIS, that publicly and officially discloses the responsible official’s decision regarding which alternative assessed in the EIS will be implemented. The responsible official for the Virginia Forest Management Project is the Laurentian District Ranger.

Scenery Management System (SMS) – A tool developed by the USDA Forest Service for inventory, analysis, and management of scenery.

Scenic Attractiveness – The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rockform, waterform, and vegetation pattern. It is classified as: A – Distinctive, B – Typical or Common, and C – Undistinguished.

Scenic Class – A product of the inventory phase of the Scenery Management System. Scenic Classes describe the importance or value of a particular landscape or portion of that landscape. Scenic classes are determined and mapped by combining the three classes of scenic attractiveness with the distance zones and concern levels of landscape visibility. Generally, Scenic Class 1 and 2 areas have high public aesthetic value, Scenic Class 3, 4, and 5 areas have moderate public aesthetic value, and Scenic Class 6 and 7 areas have low public aesthetic value.

Scoping – The on-going process used to determine public opinion, receive comments and suggestions, and determine issues during the environmental analysis process. Scoping involves gathering information through public meetings, telephone conversations, or correspondence.

Seasonal Road – Constructed for dry weather use, normally constructed with native or pit run borrow. These roads are normally closed during spring breakup or periods of wet weather. Use may also occur during the winter. Roads may be classified as permanent or temporary.

Section 106 of the NHPA – Requires federal agencies, prior to taking action to implement an undertaking, to take into account the effects of their undertaking on historic properties and afford the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment regarding such an undertaking.

Sediment – Solid material, both mineral and organic, that is in suspension and being transported from its site of origin by the forces of air, water, gravity, or ice.

Sensitive Receptors – Sites usually defined as locations where human populations tend to concentrate and where smoke could affect the health of those populations or significantly affect visibility that may be detrimental to either their health or their enjoyment of scenic qualities of the landscape.

Sensitive species – Plant and animal species for which population viability is a concern; the designation of “sensitive species” is given by the Regional Forester.

Seral – A plant and animal community that is in a transitional stage of succession, being either short or long term. If left alone, the seral stage will pass, and another plant and animal community will replace it.

Shelterwood Harvest – A method used to regenerate even-aged stands. A portion of the existing trees are removed to encourage the establishment of a new age class beneath the shelter of the residual trees.

Shipstead-Newton-Nolan Act – A law to conserve the natural beauty of shorelines in northern Minnesota for recreational use.

Site Index – A measure of site class based upon the height of the dominant trees in a stand at an arbitrarily chosen age.

Site Preparation – The general term for removing unwanted vegetation, slash, roots, and stones from a site before reforestation.

Skid – Haul logs by sliding from stumps to a collection point.

Slash – The residue left on the ground after timber cutting or after a storm, fire, or other event. Slash includes unused logs, uprooted stumps, broken or uprooted stems, branches, bark, etc.

Snag – A standing dead or dying tree.

Softwoods – Conifers.

Soil nutrients – Components in the soil that are necessary for plant growth such as nitrogen, phosphorus, potassium, and other micronutrients.

Soil productivity – The ability of a soil to provide nutrients, water, and structure for plant growth.

Soil Quality – The inherent capacity of a specific soil, as determined by its inherent physical, chemical, and biological characteristics, to perform its biologic, hydrologic, and ecological functions.

Spatial data/spatial patterns – information about the location and shape of geographic features, and the relationships between them.

Special Use Permit (SUP) – Authorization, without conveying an interest in land, to occupy and use National Forest System land or facilities for specific purposes, and is both revocable and terminable.

Stand – A contiguous area of vegetation that is similar in species, age, and condition.

State Historic Preservation Officer (SHPO) – The state agency responsible for overseeing the management and protection of heritage resources in compliance with the NHPA.

Subsection – A classification unit based on the National Hierarchical Framework of Ecological Units.

Succession – The natural replacement, in time, of one plant community with another. It includes changes in species, structure, and community processes, and is reasonably predictable.

Surface Fire – A fire that burns only in surface fuels, such as litter, down woody material, and small vegetation.

Swamps – Wetlands dominated by woody plants, including trees and shrubs.

Temporary Road – A road that is authorized for short-term use and is not intended to be part of the forest transportation system.

Thinning – A treatment intended to enhance forest health and improve tree growth by reducing the number of trees in a stand.

Threatened species – An official designation, given by the United States Fish and Wildlife Service, which is applied to any species that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

Threatened, Endangered, and Sensitive Species (TES) – Federally listed threatened and endangered animals and Region 9 Forester's Sensitive Species. Endangered Species are those plant or animal species listed by the Secretary of the Interior as being in danger of extinction within the foreseeable future throughout all or a significant portion of its range, per the ESA. Threatened Species are those that are likely to become endangered within the foreseeable future.

Till – An unconsolidated and unsorted glacial deposit of rocks, sand, silt, and other glacial debris.

Timber Stand Improvement (TSI) – Actions to improve growing conditions for trees in a stand by elimination or suppression of the less desirable vegetation.

Trail – A linear travelway for purpose of travel by vehicles 50 inches in width or less, pack animals, or people.

Tree Species Diversity – the percentage of total number of individual trees by species.

Twenty-five Percent Fund Rule – Twenty-five percent of USDA Forest Service revenues from timber receipts are returned to the States to be allocated to counties in which National Forest System land is located. These funds are used to help pay for school services and road maintenance.

Two-age – a stand composed of two distinct age classes that are separated in age by more than 20 percent of rotation.

Two-aged Harvest – A treatment designed to maintain and regenerate a stand that has two age classes.

Unclassified Road – A road on NFS land that is not needed for, and not managed as, part of the forest transportation system. These roads will either be decommissioned or converted to a trail.

Underburn – A prescribed fire that consumes surface fuels but not trees and shrubs.

Understory – The tree, shrub, and other plant species growing within the shade provided by a tree canopy.

Undertaking – Any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located within an area of potential effects and if the activity is under the direct or indirect jurisdiction of federal agency or licensed or assisted by a federal agency.

Unit Cards – Detailed descriptions of each timber harvest unit, and the road, recreation, and fuel treatment projects.

Vegetation Composition – the mix of tree species present on a site or landscape, or population and the species' relative abundance.

Vertical Diversity – the diversity in a stand that results from the different layers or tiers of vegetation.

Viability Indicator Species (VIS) – Federally listed species, selected Region 9 Forester's Sensitive Species, and other species of special concern.

Viable Population – The number of individuals of a species sufficient to ensure long-term existence in natural, self-sustaining populations adequately distributed throughout their range.

Viewshed – The area visible from a particular location.

Visual Quality Objectives (VQO) – Objectives describing the degree of acceptable alteration on the natural landscape. One of the following five VQOs is assigned to an area based upon its variety class and sensitivity level: preservation, retention, partial retention, modification, or maximum modification.

Water bar – a shallow channel or raised barrier of soil or other material laid diagonally across the surface of a road or trail in order to lead water off the road and prevent soil erosion.

Water Yield – The quantity of water expressed either as a continuous rate of flow or as a volume per unit of time. Total runoff.

Watershed – An area that, because of topographic slope, contributes water to a specified surface water drainage system, such as a stream or river.

Weighted Average – A method of averaging a series of quantities that takes into account the relative importance of each quantity's contribution to the average.

Wetlands – Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

White pine blister rust – A fungal disease that forms cankers on stems and branches of white pine.

Whole-tree logging – A harvesting method that involves cutting and dragging whole trees with crowns intact to a landing area, where the crowns of the trees are then cut off.

Wild and Scenic River System – Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values designated by

Congress under the Wild and Scenic Rivers Act of 1968 for preservation of their free-flowing condition.

Wildfire – An unwanted wildland fire.

Wildland Fire – Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Winter Roads – Constructed to lie lightly on the land to reduce ground disturbance, and utilize snow and ice as part of the road surface. They are used only during frozen roadbed conditions, and are closed other times of the year. Winter roads may be classified or temporary roads.

Woody Debris – Large pieces of wood in stream channels or on the ground, including logs, pieces of logs, and large chunks of wood; provides streambed stability and/or habitat complexity. Also called coarse woody debris or down woody debris.